MAY 12 1994

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• Engineers
• Environmental Scientists

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MAGIC MOUNTAIN SKI AREA

MAINTENANCE FACILITY CORRECTIVE ACTION PLAN
Magic Mountain Access Road
Londonderry, Vermont

SOIL EXCAVATION REPORT

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May 9, 1994

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1.0 INTRODUCTION

On February 22, 1994, the Vermont Department of Environmental Conservation, Sites Management Section formally approved a work plan for the remediation of petroleum contaminated soils at Magic Mountain Ski Area's maintenance facility and snowmaking compressor station complex. The work plan for the remediation of the site was developed by Wagner, Heindel & Noyes, Inc. (WH&N); the document, entitled "Magic Mountain Ski Area, Maintenance Facility, Magic Mountain Access Road, Londonderry, Vermont, Corrective Action Plan", was submitted on February 4, 1994.

The Corrective Action Plan for the maintenance facility site details a remediation strategy of soil excavation with surface treatment followed by groundwater monitoring and soil treatment. Site location maps, including a plan map depicting the locations of the two excavation sites and proposed location of the soil stockpile (staging) area, are provided attached in Appendix 1. The Excavation Plan map (Appendix 1, page 2) delineates the zones of contamination at the site based on the results of the soil boring program completed in October, 1993.

This report is intended to document conditions encountered and work performed in the completion of the soil excavation and stockpiling phase of the maintenance facility corrective action plan.

2.0 SOIL EXCAVATION

The excavation phase of the Magic Mountain Ski Area remediation project was begun on March 16, 1994 and completed by March 29, 1994. Earthmoving activities were performed by Markowski Excavating, Inc. of Florence, Vermont. Site supervision,

monitoring and health & safety oversite were provided by Wagner, Heindel & Noyes, Inc. of Burlington, Vermont. The site work was conducted under a Site Safety Plan prepared specifically for this project.

Two separate but adjoining petroleum release sites were remediated:

- the snowmaking compressor station and underground fuel storage tank farm site on the north side of the maintenance facility; and

- the stand-by electrical generator underground storage tank site on the south side of the maintenance facility complex.

The extent of excavation at the two release sites are depicted on the attached Excavation and Soil Staging Location Map (see map pocket) and on the Limits of Excavation Plan map and attendant cross-sectional views provided in Appendix 1 (pages 3 and 4). A chronology of site activities for the period March 16, 1994 to March 29, 1994 is provided in the Site Activity Log in Appendix 2. A photographic record of the project, arranged in chronological order, is included in Appendix 3.

2.1 Procedure

The procedure employed to assess the degree of soil contamination at the site followed testing protocols and guidelines set forth in the Hazardous Materials Management Division's publication "Agency Guidelines for Petroleum Contaminated Soil and Carbon Media". These guidelines provide for the use of a photoionization detector or PID as a means of determining the level of petroleum contamination in soils. The guidelines also state the soils contaminated with no.2 fuel oil or diesel fuel having photoionization detector (PID) vapor readings less than 10 ppm may be backfilled while soils bearing PID soil vapor readings over 10 ppm require treatment.

Although gasoline products were also used and stored at the site, diesel fuel has a lower threshold limit value (10 ppm for diesel fuel vs. 20 ppm for gasoline). Therefore, differentiation of clean versus contaminated soils during the site remediation used the Agency threshold PID value of 10 ppm.

The PID used during the soil excavation was an H-Nu model PI-101 photoionization detector equipped with a 10.2 eV lamp. Soil vapor concentrations were derived by

head space screening of soils placed in self-sealing plastic bags. The PID was calibrated using an isobutylene standard gas at the beginning of each work day.

During the excavation operation soils were segregated on the basis of the PID soil vapor screening results. Soil with PID vapor readings below 10 ppm did not require treatment and thus were either left in place or set aside for replacement (backfill). Soil yielding PID vapor levels above 10 ppm required treatment and were stockpiled in plastic-line containment basins or cells at the soil staging area. Efforts were also made to separate the larger stones, rocks and cobbles, and any non-soil debris from the soils destined for treatment. The waste rock was stockpiled for later replacement while the other debris (mainly wood, steel and concrete) were stockpiled separately.

The soils requiring treatment were further segregated on the basis of degree of contamination. Soils with PID vapor levels of 10-50 ppm were stockpiled separately from soils with PID vapor levels above 50 ppm. A total of five treatment cells constructed; cells 1 and 3 contain soils with PID vapor levels of 10-50 ppm while cells 2, 4 and 5 contain soils with PID vapor levels over 50 ppm (see Excavation and Soil Staging Map, map pocket).

Excavated soil volumes were tracked by a daily load count made by the WH&N inspector and confirmed by Markowski Excavating. Each full rock truck load was determined to contain 22 yds of soil. The rock truck soil volumes were determined by periodic excavator bucket counts (number of 1¼ yd excavator buckets per load). The amount of cow manure delivered was based on a volume of 14 yds per tandem axle dump truck. Manure to soil mixing ratio was based on a front-end loader bucket volume of 2 yds per scoop. The desired manure to soil ratio was 1:4; the total amount of manure delivered (686 yds) vs. the total quantity of contaminated soil stockpiled (2600 yds) yielded a mixture ratio of approximately 1:3.8.

2.2 Excavation at Snowmaking Compressor Station Site

The excavation phase of the project actually began on Tuesday, March 15, 1993 with Markowski Excavating clearing snow from the snowmaking compressor station site. A Central Vermont Public Service crew was scheduled to deactivate and remove overhead electrical lines and poles from the site the following day however, inclement weather forced the postponement of this work until Thursday, March 17. In spite of Wednesday's weather, Markowski Excavating was able to deliver to the

site the excavator and haul truck (rock truck), begin manure delivery, and complete snow removal at the excavation site and soil staging area.

Earthmoving activities formally began on the morning of Thursday, March 18 following removal of the overhead electrical lines and removal of the wooden fencing which bounded the northern edge of the compressor station site. Portions of the snowmaking system in-ground piping network also had to be removed before the site was free of obstructions.

The soil excavation began at the northern edge of the terrace formerly occupied by the snowmaking compressor station. The width of the excavation extended from the maintenance building on the western margin of the site to the small stream on the eastern margin of the site. Trees, brush and other debris were removed from the site and stockpiled at one end of the soil staging area.

The base depth of the excavation was set to the elevation of the Access Road (approximately 10 feet below the terrace elevation). The entire edge of bank was cut back approximately 15 feet before any evidence of contamination was encountered. In all approximately 660 yds of clean soils were excavated and the northern and western limits of the zone of contamination were fairly well established by days end Friday, March 18. The edge of the contaminated zone was marked by a marked increase in PID vapor levels and changes in soil coloration (generally darker colored than the clean soils). The clean overburden consisted of silty sands and silty gravels with abundant rocks and cobbles as wells as buried woody debris. The underlying basal till horizon is a compact, light brown to tan sandy loam with abundant gravels and stones.

Excavation and stockpiling of the first of the contaminated soils at the site began on Monday, March 21. The excavation was conducted by removing layers of soil in 2 to 3 ft. deep lifts on 15 to 20 ft. wide benches (cut east-west) across the site. The lift and bench excavation technique allows for better soil segregation than does cut-slope face digging where cross-contamination makes soil characterization difficult. Less mixing of contaminated soil with clean soil results in less soil volumes requiring treatment.

Except for oil-stained gravels of the former air compressor pads, the majority of the top 2 feet of soils at the site had PID vapor levels less than 5 ppm. Between 2 and 8 feet, isolated pockets of contamination were encountered, particularly in the vicinity of the stream at the eastern margin of the site and at the southwestern

margin of the excavation site near the north wing of the maintenance building. These pockets of contamination were easily differentiated by color contrast and odor. Fuel oil-contaminated soils evidenced a dark gray coloration while the gasoline-contaminated soils evidenced a light blue-gray coloration. A perched water table (at approximately 5 feet below ground surface) and small quantities of free product were even detected at the southwest corner of the site. The deeper excavation also encountered several large tree stumps. As previously suspected, the buried tree stumps were found to have small accumulations of free product (fuel oil) and a high degree of oil staining and saturation. For the most part, maximum PID soil vapor levels in the 2 to 8 ft deep horizon did not exceed 40 ppm. Average PID levels were generally in the range of 20 to 30 ppm.

Soils excavated at depths greater than 8 feet appeared to be within the seasonal high water table and tended to have relatively high PID vapor concentrations (up to 150 ppm). Notably, the higher PID readings were associated with distinct gasoline odors. At the point in the season when the excavation was performed, the water table at the site was measured at 10.5 ft below ground surface. The water table appears to be controlled by the presence of a dense and compact glacial till unit (basal till) was encountered at depths ranging from 9 feet at the southern margin of the excavation to 12 feet at the northern limit of excavation. The top of the basal till also appears to dip to the northwest. Soil overlying the basal till unit is primarily fill material, some of which appears to be reworked glacial till (much less compact).

Removal of the less compact overburden at the southeastern corner of the site uncovered a 3 ft-deep rectangular depression in the basal till (see Limits of Excavation map and Cross-Section A-A', Appendix 1, pages 3 and 4). The size of this depression matches well with the size of the 12,000 gallon underground diesel fuel tank which according to Dufresne-Henry's base map was located more to the north (removed in 1989). The deep soil horizon at this suspected UST location evidenced significant soil discoloration and yielded very strong gasoline odors. Soil removed from just above the basal till yielded PID vapor levels of 130 to 150 ppm. PID readings of 18 ppm were measured in the upper 6 inches of the basal till. No elevated PID readings were observed at depths greater than 12 inches into the basal till.

During excavation at the southern margin of the site a ¼ inch copper fuel line was discovered paralleling the 10 inch steel snowmaking water line which extended from the pumphouse in the east wing of the maintenance building north to the

snowmaking air compressor stations. This line was found to contain no.2 fuel oil. Upon further investigation it was determined that the fuel line was connected to the stand-by electrical generator located above the snowmaking water pump room house. The fuel line was removed from the ground and drained of fuel.

Deep excavation at the eastern margin of the site near the stream culvert under the facility's entrance encountered a deposit of moderately well sorted gravels which evidenced a high degree of fuel oil staining and oil saturation (black color/discoloration and oil odor). This channel deposit led to, and apparently under, the culvert pipe outfall on the stream at the eastern margin of the site. The gravel channel deposit is the likely conduit for free phase product to have entered the adjacent stream. This portion of the site was formerly occupied by a 3000 gallon diesel fuel underground storage tank and a 4000 gallon diesel underground storage tank which had at one time been used for gasoline storage. The 3000 gallon UST was removed in 1990 while the 4000 gallon tank was removed in July, 1993.

Following this zone of deep contamination beyond the culvert outfall northward toward the Access Road, discolored soils with moderate to strong gasoline odors became prevalent. Furthermore, the depth of the contamination increased to the north, reaching a depth of approximately 20 feet below the top of the terrace and almost 10 feet below the base elevation of the adjacent stream. PID vapor readings of up to 200 ppm were detected in the gravelly soils in the deeper portion of the excavation. However, this zone of deep contamination was found to be fairly narrow. Not including material left near the stream, the deep excavation was approximately 10 feet wide. Removal of the overburden at the site revealed what appears to be another basin in the basal till; the basin was excavated almost 6 feet deep into the basal till (see map and Cross-Section C-C', Appendix 1, pages 3 and 4). As seen at the southwestern corner of the site, the excavation in the basal till may denote the location of a former 12,000 gallon diesel fuel UST (removed in 1989). However, this location seems rather close to the stream for a tank site. The deep gravel deposit may be an ancient stream channel or a filled ravine. The Dufresne-Henry base map indicated that the second 12,000 gallon diesel fuel UST was located approximately 30 feet to the east but the accuracy of that mapping can not be confirmed. Unfortunately, no other maps of the underground storage tank farm are available.

Due to the proximity of overhead electrical lines paralleling the Access Road, and the stream at the eastern margin of the site, a thin band of soils with PID vapor

levels ranging from 10 to 20 ppm could not be removed safety from the northeastern edge of the excavation. The location of this zone of unrecoverable contamination is depicted on the attached Limits of Excavation map (Appendix 1, page 3). On the basis of the deep soil borings conducted last October (in particular soil boring SB-3 at the northern edge of the deep contamination zone), and test pit TP-1 (excavated last July to the east of the deep contamination zone), it appears that the remaining contamination is limited in extent and represents a very small fraction of the total volume of contaminated soils which was removed from the site.

The last load of contaminated soil transferred to the soil staging area was completed on Monday, March 28 however, the excavation project was not actually finished until Tuesday, March 29. The last day was spent backfilling the deep excavations and grading for slope safety, stability and drainage. In the remediation of the snowmaking compressor station site a total of approximately 3840 yards of soil were excavated from which approximately 2600 yds of contaminated soils were placed in the soil staging area for treatment.

2.3 Excavation at Stand-by Electrical Generator Site

The stand-by electrical generator is located on the second floor of the west wing of the maintenance building. As the building is cut into the side hill, ground surface at the rear or south side of the complex is level with the second story. The generator's engine used diesel fuel oil originally stored in an underground 500 gallon tank located adjacent to the building between the generator room's man door and garage door entries on the south side of the facility (see Limits of Excavation Plan, Appendix 1, page 3).

The tank site assessment conducted during removal of the abandoned 500 gallon diesel fuel oil UST at the stand-by electrical generator site last year indicated that the extent of contamination at this site was limited to the immediate vicinity of the tank. We had estimated that approximately 40 yds of soil would be excavated to recover approximately 20 yds of contaminated soil. In actuality, 60 yards of soil were excavated to recover approximately 18 yds of contaminated soils.

The stand-by electrical generator tank site was excavated on March 28, 1994. No contamination was detected in the upper 4 feet of the soil profile at this location. Discolored soils with PID vapor levels ranging from 10 to 40 ppm was encountered just below the former tank location. The contamination extended to a depth of 10

feet. Confirming our previous tank site assessment, the zone of contamination was found not to be laterally extensive. The footprint of the zone of contamination was approximately 4 ft x 10 ft. Through over excavation, all soils with PID vapor levels above ambient levels were removed and the excavation was then backfilled with clean fill.

A composite soil sample was collected from the excavated soils and analyzed at the laboratory via EPA Methods 8020 and 418.1. The results of the EPA Method 8020 assay found the soils at this site to contain low levels of Ethylbenzene (48.7 ppb) and Xylene (387 ppb) and 10 unidentified compounds (presumed to be long-chain hydrocarbons). The EPA Method 418.1 testing found the soil sample to have a total petroleum hydrocarbon concentration of 1,100 ppm. The laboratory report forms are provided in Appendix 4 (pages 12 and 33).

3.0 INITIAL SOIL SAMPLING RESULTS

During the excavation operation composite soil samples were collected to determine the initial levels of contamination in the soils stockpiled for treatment at the soil staging area. The soil samples were analyzed in the laboratory via EPA Method 8020 (for purgeable aromatic hydrocarbons - BTEX) and EPA Method 418.1 (total petroleum hydrocarbons). The location and numerical designation of the surface treatment cells in the soil staging area are provided on the attached Excavation and Soil Staging Map (see map pocket) Three composite soil samples were collected for each cell except for Cell 3 where only two samples were collected.

The results of the laboratory characterization are compiled in the summary table provided in Appendix 4 (Table 2, page 1). This summary table includes average contaminant concentrations per treatment cell and the remediation goals (clean up levels) for each cell based on a 90% reduction in initial contaminant concentrations. Individual laboratory reports are also included in Appendix 4. These sampling results provide a benchmark against which future soil sampling results can be compared for the purpose of tracking the progress of the soil pile treatment and determining when the site is eligible for closure. The results of the initial soil sampling are tabulated below.

TABLE 1
SOIL TESTING RESULTS - INITIAL CONTAMINANT LEVELS
March 21-28, 1994

Soil Sample Address		Contaminant Concentrations			
CELL	SAMPLE	BENZENE	MBTEX µg/kg	TPH mg/kg	PID ppm Isobutylene
#1	#1	0	36.9	3,500	35
#1	#2	0	30.0	1,900	10
#1	#3	0	54.7	8,600	16
#2	#1	0	2,204.4	470	60
#2	#2	0	1,637.9	6,000	150
#2	#3	240	26,652.0	2,400	35
#3	#1	0	7,565.0	2,400	48
#3	#2	0	186.0	2,200	45
#4	#1	0	1,325.0	5,700	110
#4	#2	0	5,399.0	390	150
#4	#3	0	12,728.4	140	
#5	#1	0	1,009.0	38	110
#5	#2	0	305.0	270	112
#5	#3	0	200.0	107	88

EPA Method 8020:
Benzene (ppb); MBTEX : total MTBE, Benzene, Ethylbenze, Toluene, Xylene (ppb µg/kg)
EPA Method 418.1
TPH: Total Petroleum Hydrocarbons (ppm mg/kg)
PID: Photoionization Detector (ppm)

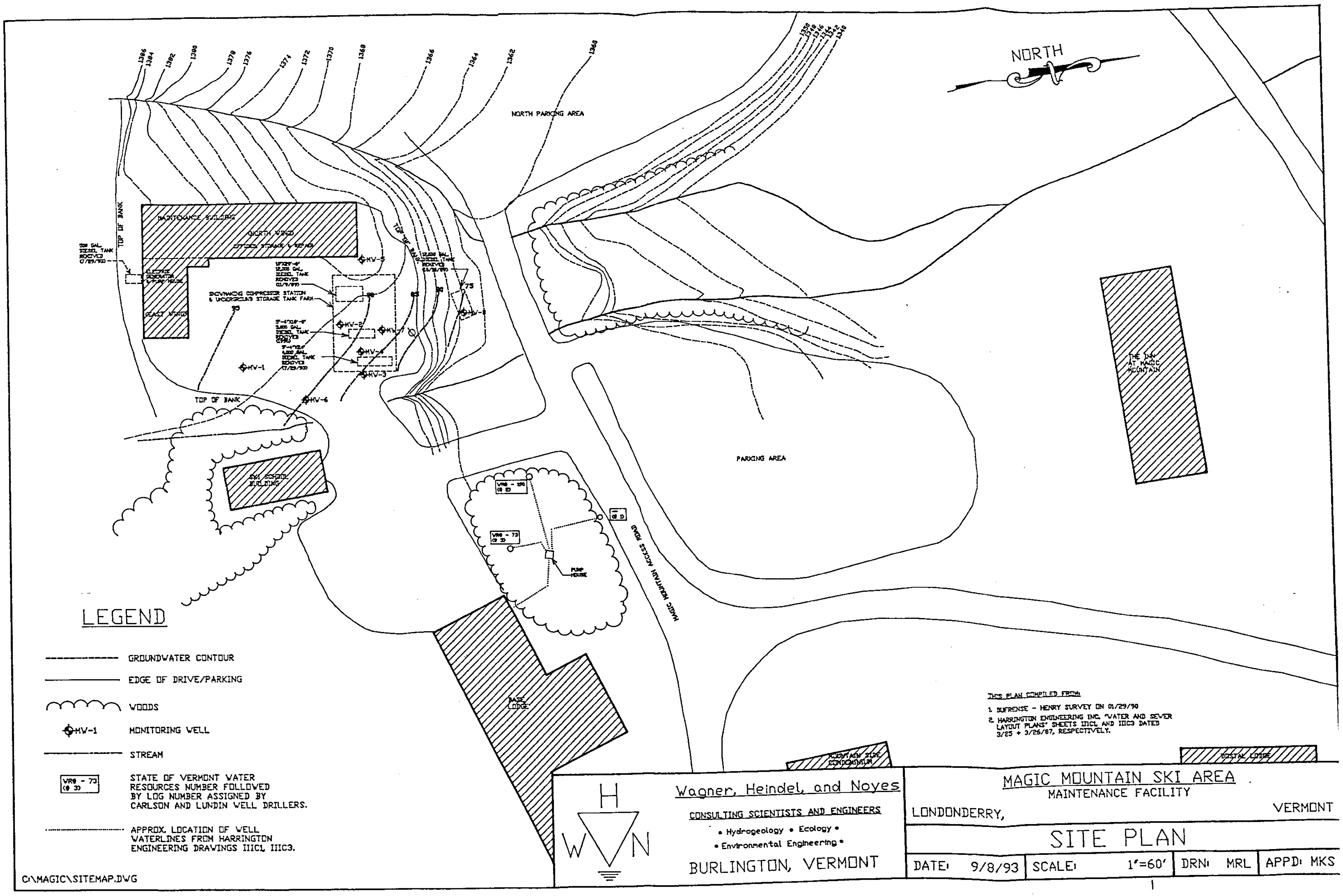
4.0 FUTURE WORK

Per the provisions of the Corrective Action Plan, future site activities include on-going monitoring of the soil treatment cells, and quarterly water quality sampling. The results of the water quality sampling will be submitted to the Sites Management Section also on a quarterly basis. The soil stockpile monitoring results will be submitted when the clean up goals have been achieved or at the end of the growing season.

The first quarterly water quality sampling round was completed on May 2, 1994. The locations sampled include groundwater monitoring wells MW-1, MW-5, MW-6, MW-9,

MW-10, and surface water sampling locations SW-3 and SW-4. All other previously existing monitoring wells were removed during excavation.

[RPT-MAGIC.EXC/MKS 3-8-94]


NORTH
NORTH PARKING AREA
TOP OF BANK
MAINTENANCE BUILDING
NORTH WING
EAST WING
HV-1
HV-2
HV-3
HV-4
HV-5
HV-6
HV-7
HV-8
SKI SCHOOL BUILDING
PUMP HOUSE
MAGIC MOUNTAIN ACCESS ROAD
PARKING AREA
THE INN AT MAGIC MOUNTAIN
BASE LODGE
MOUNTAIN SIDE CONDOMINIUM
LEGEND
GROUNDWATER CONTOUR
EDGE OF DRIVE/PARKING
WOODS
MONITORING WELL
STREAM
STATE OF VERMONT WATER RESOURCES NUMBER FOLLOWED BY LOG NUMBER ASSIGNED BY CARLSON AND LUNDIN WELL DRILLERS.
APPROX. LOCATION OF WELL WATERLINES FROM HARRINGTON ENGINEERING DRAWINGS IIIC1, IIIC3.
THIS PLAN COMPILED FROM:
1. DUFRENSE - HENRY SURVEY ON 01/29/90
2. HARRINGTON ENGINEERING INC. "WATER AND SEWER LAYOUT PLANS" SHEETS IIIC1 AND IIIC3 DATED 3/25 + 3/26/87, RESPECTIVELY.
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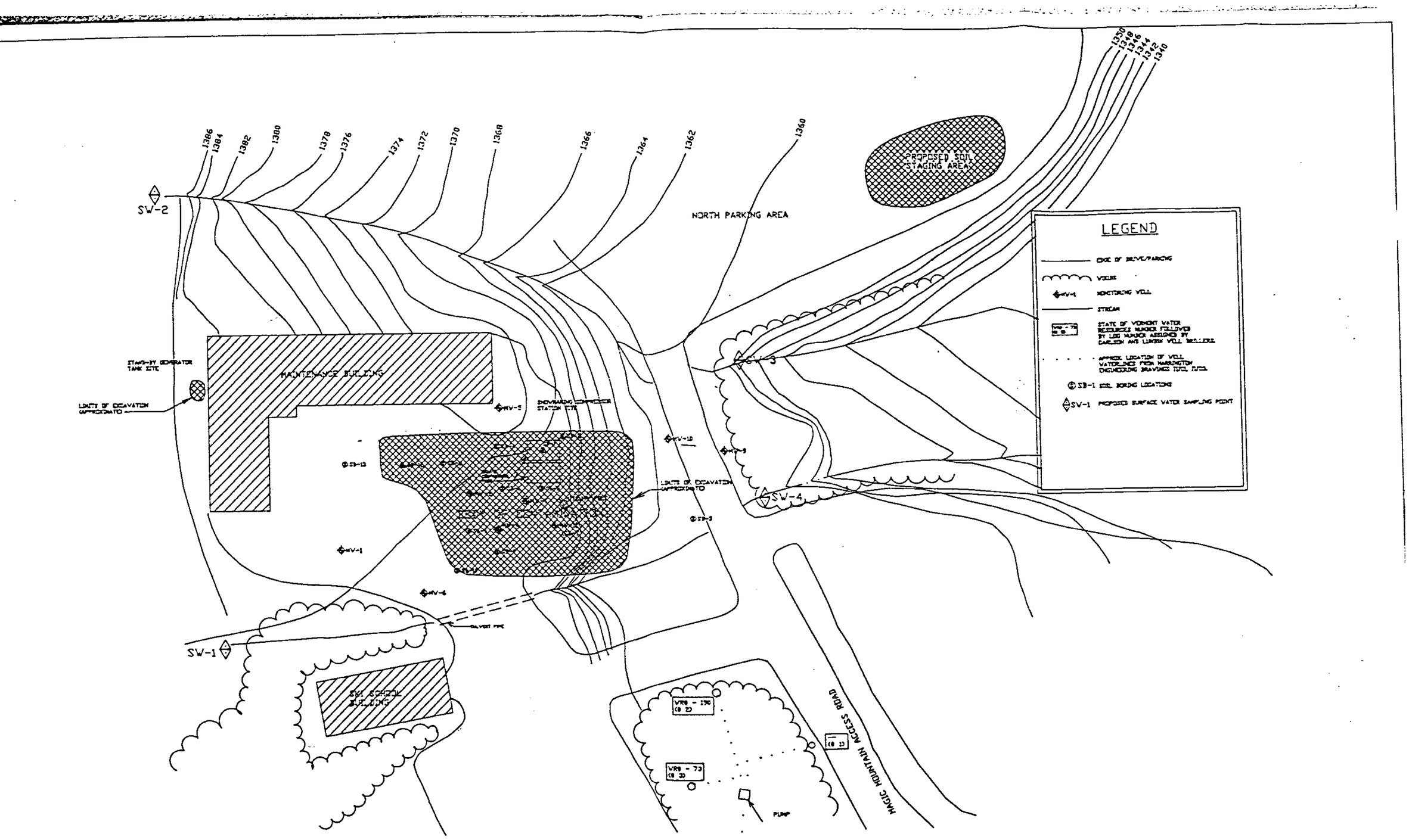
• Environmental Engineering •
BURLINGTON, VERMONT
MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
LONDONDERRY,
VERMONT
SITE PLAN
DATE: 9/8/93
SCALE: 1"=60'
DRN: MRL
APPD: MKS



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BURLINGTON, VERMONT

MAGIC MOUNTAIN

LONDONDERRY VERMONT

EXCAVATION PLAN

DATE: 3/15/94	SCALE: 1"=50'	DRN: MRL	APPD:

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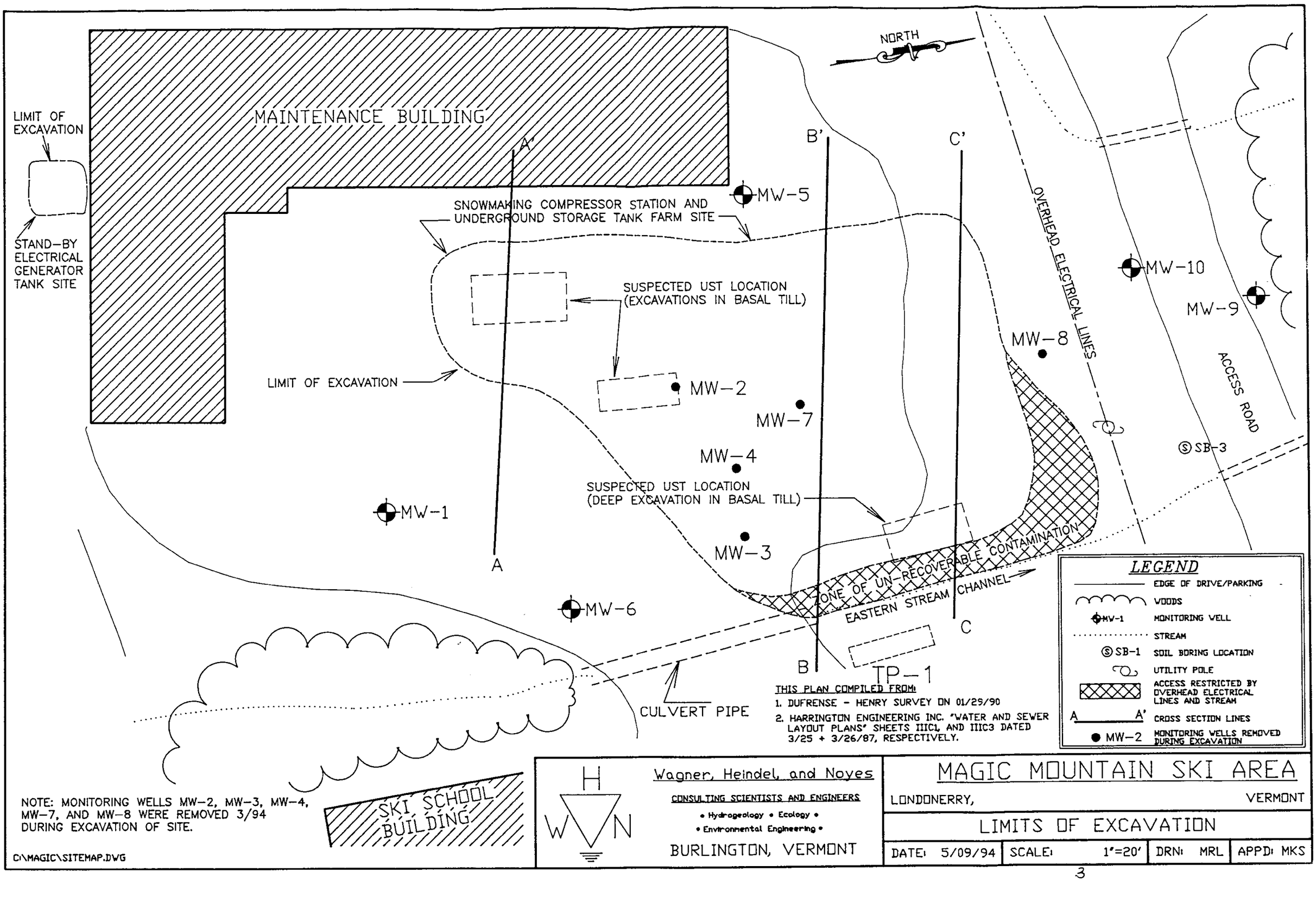

THIS PLAN COMPILED FROM:

1. DUFRENSE - HENRY SURVEY ON 01/29/90
2. HARRINGTON ENGINEERING INC. "WATER AND SEWER LAYOUT PLANS" SHEETS IIIC1 AND IIIC3 DATED 3/25 + 3/26/87, RESPECTIVELY.

NOTE: MONITORING WELLS MW-2, MW-3, MW-4, MW-7, AND MW-8 WERE REMOVED 3/94 DURING EXCAVATION OF SITE.

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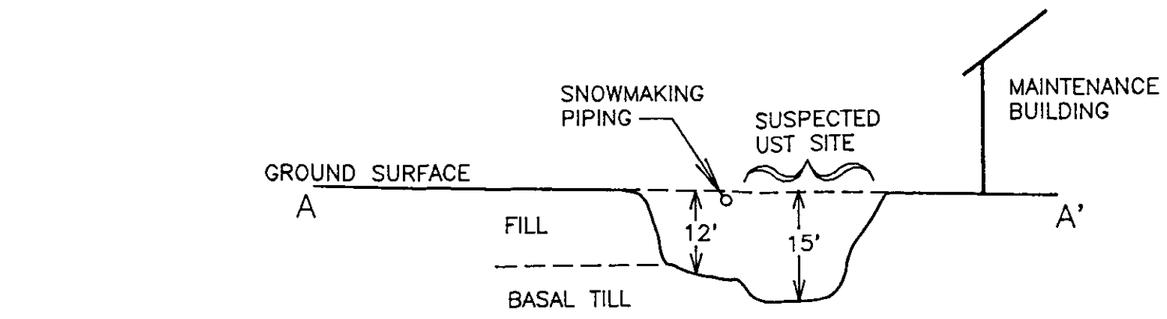
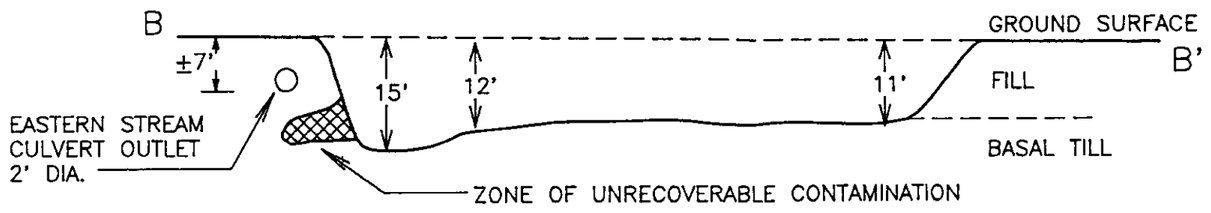
MAGIC MOUNTAIN SKI AREA

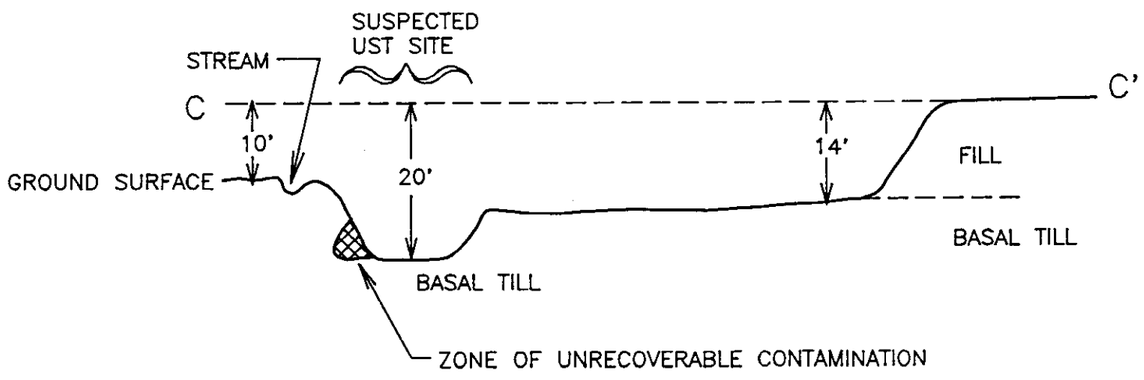
LONDONERRY, VERMONT

LIMITS OF EXCAVATION

DATE: 5/09/94	SCALE: 1"=20'	DRN: MRL	APPD: MKS







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MAGIC MOUNTAIN SKI AREA

LONDONERRY, VERMONT

CROSS SECTIONS A-A', B-B', AND C-C'

DATE: 5/03/94	SCALE: 1"=20'	DRN: MRL	APPD: MKS

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MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

Excavation contractor:	Markowski Excavating, Inc., Florence, Vermont
Site supervision and monitoring:	Wagner, Heindel, and Noyes, Inc., Burlington, Vermont
Project Manager:	M.K. Sparks
Senior Technician:	C. Aldrich
Photoionization Detector (PID):	H-Nu Model PI-101, 10.2 eV lamp
Oxygen/explosivity meter:	MSA O_2 LEL meter

Day 1, Wednesday, March 16, 1994

Weather:	Overcast, 30-32°, rain turning to snow
9:00 a.m.	Meeting with Magic Mountain Property Manager Pat O'Connor. Presentation of Site Safety Plan
10:00 a.m.	Waiting on Central Vermont Public Service Corp. to deactivate and remove overhead electrical lines. Markowski mobilizing heavy equipment.
11:00 a.m.	CVPS dispatcher confirmed that utility crew cancelled site work, due to inclement weather. Rescheduled for following day.
12:30 p.m.	Markowski engaged in snow removal. Markowski equipment on-site: Cat 225, excavator with ¼-yard bucket, Cat 944 loader with 3-yard bucket; Cat D350 rock truck, 22-yard capacity.

Day 2: Thursday, March 17, 1994

Weather:	Clear, cold, moderately windy, temperature below freezing
9:00 a.m.	Site safety meeting with Markowski Excavating; PID calibration. Began the day by finishing the snow removal and removing abandoned snowmaking compressor station piping and plumbing, concrete piers; debris stockpiled onsite
1:30 p.m.	Started excavating clean fill at northern edge of site staging area. Some clean fill used to construct earthen berm for soil stockpile containment cell #1. A total of 154 cubic yards of clean fill excavated by day's end. PID screening of fill yielded no detectable vapors.

MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

Day 3: Friday, March 18, 1994

8:30 a.m.	Site safety meeting. PID calibration. Continue excavation of clean fill at northern edge of maintenance facility site. Trees, brush, and stumps taken to soil staging area. Clean fill predominately silty to sandy loam with 20-25% cobble, stone, and rocks.
2:00 p.m.	Load count - number of excavator buckets per rock truckload. First count: 18 buckets Second count: 15 buckets Third count: 19 buckets Based on 1¼ yards per bucket, truckloads range from 18.5 - 24.0 cubic yards per rock truckload. Truck load volume set at 22 cubic yards.
3:15 p.m.	Excavation reaches northern limits of contaminated soil zone. PID levels at boundary = 5-10 ppm. At day's end, a total of 550 cubic yards of clean fill was excavated. PID screening of clean fill yielded no concentrations greater than 5 ppm. The majority of fill is non-detect. No soil discoloration; no odor.

Day 4: Monday, March 21, 1994

8:30 a.m.	Site safety meeting. PID calibration. Preparations to begin stockpiling contaminated soil. Lined soil berm area with 6 mil black plastic polyethylene sheeting. Installed 2" factory-slotted PVC drain screen with filter-fabric wrap for underdrain. Began excavation of contaminated soils. Excavation of contaminated surficial soils and crushed stone at site of former snowmaking air compressor units. Dark gray to black stained gravels. Slight fuel oil odor. PID = 25 ppm.
9:10 a.m.	Continued excavating at edge of site, segregating clean fill (PID < 10 ppm) from contaminated fill (PID >10 ppm) . Excavation performed by benching with removal of soil in 2-3' lifts and benches 12-15' wide. Excavation along edge of eastern stream channel: top 2', clean gravels. PID 0-5 ppm. At depth of 2', encountered pockets of contamination of fuel oil (denoted by a dark gray soil discoloration and fuel odors) and gasoline (marked by light gray discoloration and gasoline-like odors). PID: 25-30 ppm. Abundant large rocks, cobbles, and wood debris (logs and stumps) also segregated from soils and stockpiled separately in soil staging area.
1:15 p.m.	Excavation at northeast corner of site, adjacent to eastern stream channel: 6-8' below ground surface, PID = 30 ppm, gasoline odors.
4:30 p.m.	At end of day, a total of 506 cubic yards of soil excavated.

MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

Day 5: Tuesday, March 22, 1994

Weather:	Snow, 30-32° F., accumulations of 8-10" by 9:00 a.m.
7:30 a.m.	Site safety meeting. Began snow removal. Calibrated PID.
8:00 a.m.	Resumed soil excavation at northeast corner of site. Heavy contamination encountered. Oil saturation of some soil, black, also gasoline contaminants present. PID = 150 ppm.
	Soil profile northeast end of site
	• surface to 1': gravels, PID < 5 ppm • 1'-2' bgs: gravelly sands, some silt, PID <5 ppm • 2-8' bgs: sandy loam fill with abundant boulders, rocks, and cobbles; some roots, tree stumps, and tree limbs. PID = 5-50 ppm; average 30-35 • 8-10' bgs: sandy loam fill, as above, PID = 50-150 ppm, moderate to strong fuel odors • 10' bgs: reworked glacial till, possibly fills, sandy to gravelly, some silt, PID = 150-200 ppm. • 20'+ bgs: Basal till; PID < 5 ppm; no discoloration
5:00 p.m.	At day's end, a total of 528 cubic yards of soil excavated.

Day 6: Wednesday, March 23, 1994

Weather:	Cold, partly cloudy
8:15 a.m.	Site safety meeting, calibrate PID. Construct third earthen berm, soil stock pile south
9:00 a.m.	Excavation at western edge of site near maintenance building. Established western limit of source contamination at 15 - 20' east of garage. Beyond 20' from garage surface soils yielded PID levels of 10 ppm +. 30' east of garage PID levels 10 - 50 ppm; encountered a grey/brown dissolved soil. Contamination extended from surface to approximately 4' bgs; encountered 10" steel air line for snowmaking compressor system. Elevated vapor levels in the vicinity of snowmaking line suggest possible conduit for contaminant migration.
2:00 p.m.	Perched water table encountered in vicinity of snowmaking air line; depth to water approximately 4'; some traces of free product encountered.
4:45 p.m.	At days end a total of 528 cubic yards of soil was excavated.

MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

Day 7: Thursday, March 24, 1994

7:15 a.m.	Site safety meeting, calibrated PID. Continue excavation at western edge of site, establishing southwestern limits of contamination. Yellowish compact till encountered at approximately 6' bgs. No PID readings in basal till. Overlying material sandy fill, PID levels 10 - 50 ppm. Excavation following basal till northward as two layer appears to dip to the north. Encountered reworked till not as dense or compact as undisturbed material. Green silty sand, strong fuel/gasoline odors, PID 50 - 100 ppm. Vapor readings of 10 ppm measured in breathing space. A decision was made to pull back from this area and excavate another portion of the site until vapor levels moderated.
4:30 p.m.	At day's end, a total of 418 cubic yards of soil was excavated.

Day 8, Friday, March 25, 1994

Weather:	Partly cloudy, light westerly breeze, 32 - 35° F.
7:30 a.m.	Site safety meeting, calibrated PID. Construct fourth soil stockpile contaminant cell, resume excavation at southwestern corner of site. As excavation progresses, it appears that zone of high fuel contamination and reworked tills is former site of large underground storage tank. Very heavy gasoline odors. PID levels were 130 - 150 ppm and grey/blue-grey soil discoloration. Former tank excavation approximately 30' in length by 12 - 15' in width. Base of disturbed soils at 13.5' to 14.5' bgs. Basal till dense but compact. PID at top of basal till 18 ppm. PID 1' into basal till less than 5 ppm. Test pit excavated 20' south of former tank site, 0 - 15' found no evidence of contamination, no odors, soil discoloration, PID = ND. Removed large section of 10" snowmaking air line piping at southwest corner of site, encountered 3/8" copper tubing buried beside air line. Copper line contained #2 fuel oil. By all indications, this fuel line extended from the former underground storage tank site to the steam boil electrical generator located in the east wing of the maintenance building. This line was removed in its entirety up to the edge of the building; fuel line inside the building was crimped to prevent any further leakage of product.
1:00 p.m.	Excavation proceeded along the southern limits of the excavation to the east towards the eastern stream crossing road culvert. At the southeastern corner of the site, elevated soil vapor were encountered at 7' - 10' bgs. Further excavation along the road culvert towards the northeast corner of the site encountered a very rocky sand and gravel layer at approximately 7' - 10' bgs.

MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

	This material contained pockets of oil, saturated gravels with both fuel oil and gasoline odors discernible, PID 110 ppm. Further excavation found that contamination deepened to the north following the general dip of the basal till layer near the north outfall of the driveway culvert, the base depth of the zone of contamination standed at 18' - 20' bgs. Soils considered of deep cobbly very rocky gravels with few fines contains strong gasoline odors. PID levels 100 - 130 ppm. Contaminated materials could also be visually differentiated from clean as the contaminated soils had a blue/blue-grey discoloration as opposed to the clean basal tills which had a tan to light grey coloration.
2:30 p.m.	An inspector from Sites Management Section visited the site at our request. At the time we informed the inspector of our decision not to chase contamination that extended underneath the road culvert and to the stream directly for fear of disrupting the stream itself. The inspector indicated that as it was clear that the bulk of the contamination had been removed from the site, leaving a small amount of contamination in this area was acceptable and appropriate given the circumstances.
5:00 p.m.	At day's end, a total of 704 cubic yards of soil were excavated.
	Day 9, Monday, March 28, 1994
Weather:	Clear to partly cloudy, 35 - 40°.
8:15 a.m.	Site safety meeting. Calibrate PID. Begin day with excavation of small underground storage tank site which formerly served the stand-by electrical generator located in the east wing of the maintenance building. Tank site located in the upper parking lot to the southside of maintenance building. 0 - 4': Clean sand and gravels, PID = <5 4 - 10': Green-grey sands and silts, PID = 10 - 40 ppm >10': No contamination detected, remediation of stand-by electrical generator tank site completed
1:00 p.m.	Resumed excavation at snowmaking compressor station site, northeast corner. Constructed fifth soil stockpile cell. Limit of excavation northeast corner of site taken within 10' of overhead electrical lines. Base depth of contamination 10' below grade of access road. Pocket of contamination was found to pinch out rapidly to the northwest. Soils within pocket very contaminated, 10 - 200 ppm. Soils in zone of unrecoverable contamination yielded PID vapor levels in the range of 10-20 ppm.
4:45 p.m.	A day's end a total of 616 cubic yards of soil excavated. This marks the end of soil removal activities.

MAGIC MOUNTAIN SKI AREA
MAINTENANCE FACILITY
CORRECTIVE ACTION PLAN
March 16-29, 1994

SITE ACTIVITY LOG

Day 10, Tuesday, March 29, 1994

Weather:	Sunny, moderate temperature in 40s.
7:30 a.m.	Begin day by buttoning up soil stockpiles, shaping up earthen berms, complete tarping and covering of soil piles. A total of five soil stockpile cells. Breakdown of cells as follows: Cells 1 and 3 contain soils with PID soil vapor levels 10 - 50 ppm. Cells 2, 4, and 5 contain soils with PID levels greater than 50 ppm.
1:00 p.m.	Completed day by backfilling deeper holes at soil excavation site grading and sloping sidewalls of excavation with native materials. Crew from Bromley arrived late in day, to erect a haybale, sediment/siltation fence along downgradient perimeter of soil staging area to prevent potential runoff to stream. Soil excavation project complete. Total volume of soil excavated 3894 cubic yards.

[SA-MAGIC/MKS 3-6-94]

MAGIC MOUNTAIN SKI AREA
CORRECTIVE ACTION PLAN
Soil Excavation Project
March 16-29, 1994

PHOTOGRAPHIC LOG

Photo No.	Description
	March 17, 1994
1	Clearing snow from snowmaking compressor station and underground storage tank site. View east towards ski school building and base lodge.
2	Loading clean fill at northern edge of maintenance facility parking lot
3	View north towards access road maintenance building to left
4	Maintenance building parking area; view to northeast
5	Soil staging area at parking lot northwest of maintenance facility site. Front end loader constructing earthen berms for first soil stockpile cell.
6	Earthen berms for soil stockpile cell #1
7, 8	Excavator clearing brush and loading clean fill at northern edge of site
9	Excavator pushing down cedar tree. Poor health of tree may be due to presence of contamination.
10	Excavator stripping clean overburden at northeast corner of site
11, 12	Bulk removal of clean fill. Completed current limits of excavation at approximate boundary between clean and contaminated soils.
13, 14, 15	Excavator removing soils in 2-3' lifts to facilitate segregate of clean and contaminated soil types.
16	Tree stump with black, oily residue. Free phase product also encountered in soil under tree stump.
17, 18	Excavation at northeast corner of site
19	Polyethylene plastic lined soil stockpile berm with PVC underdrain
20	View from soil staging area southeast toward maintenance facility site
	March 22, 1994
21	Early morning snow storm, with 8-10" accumulation.
22	Excavator clearing snow, soil staging area.
23, 24	Large rock and cobbles segregated during excavation.
25, 26	View south from access road. Ski school building on left; maintenance building to right.
27	Excavator loading tree stumps and logs

MAGIC MOUNTAIN SKI AREA
CORRECTIVE ACTION PLAN
Soil Excavation Project
March 16-29, 1994

PHOTOGRAPHIC LOG

Photo No.	Description
28	Placing polyethylene plastic sheeting in earthen berm soil containment cell #2
29	Excavator removing soil from apparent site of large underground storage tank. Heavy gasoline-like vapors.
30, 31	View of former tank excavation
32	Excavator shaping soil stockpiles. Cell #1 to left of excavator; cell #2 in foreground.
33	Outline of former underground storage tank excavation, showing western limit of contamination
34	View to east, towards ski school
35	Excavation at southern limits of contamination
36	View north towards soil staging area
36.1-36.3	Former underground storage tank excavation
36.4	Base depth of contamination at former underground storage tank site. Tan to light brown soils free of contamination. Contaminated soils evidence a blue-gray coloration.
37	Dense basal till
38	Stone cobble segregated from soil during excavation. View to southwest, toward maintenance building
43	Soil staging area with construction of third soil stockpile cell
44	Excavation to locate limit of contamination at eastern margin of site
45	Culvert for eastern stream channel at entrance to maintenance facility
46	Black oil-saturated gravels, extending to eastern stream channel, just north of culvert outfall (see photo 45).
47	Excavation at eastern margin of site
48, 49, 50	Deep excavation at eastern margin of site to remove contamination from below water table. Note blue-gray soil discoloration. Soils in this area had a distinct gasoline odor, with PID levels of 100-200 ppm.
51	Pinch-out of contaminated soil layer at northeast margin of site
52	Light-brown to tan, clean soils (PID < 10 ppm), underlying blue-gray contaminated soil horizon. Topsoil layer at top of photo.

MAGIC MOUNTAIN SKI AREA
CORRECTIVE ACTION PLAN
Soil Excavation Project
March 16-29, 1994

PHOTOGRAPHIC LOG

Photo No.	Description
53, 54	Eastern and northern limits of excavation, due to proximity of stream and overhead high voltage electric lines.
55	Soil stockpile cell #2, with plastic covering in place. Cell #3 center rear.
56	Soil stockpile cells #4 and #5, with excavator shaping soil pile of cell #5
57, 58	Soil stockpile cells #1 through #5, with polyethylene plastic coverings in place
March 29, 1994	
59	View north-northwest towards soil staging area in distance; boulders in foreground placed across entrance driveway to maintenance facility
60, 61, 62	Maintenance facility at completion of soil excavation activities. Site graded to fill in deeper holes and stabilize slopes
April 11, 1994	
63 - 66	Maintenance facility soil excavation site two weeks after completion of excavation activities.
67	Groundwater seep at eastern edge of excavation
68	Iron staining in soil
69	Ponded water at base of groundwater seep. Occasional light sheen manifest of iron bacteria, not petroleum.
70	Hay bale sedimentation/siltation fence installed along downgradient perimeter of soil staging area
72, 73	Views of soil staging area

[PH-MAGIC/MKS 3-8-94]

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CAT


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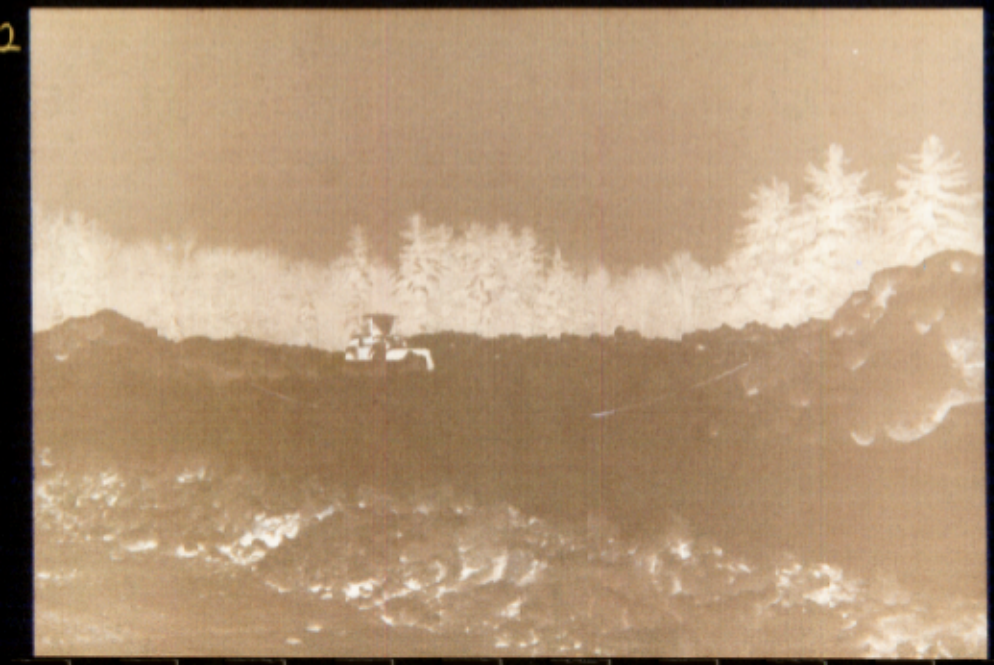

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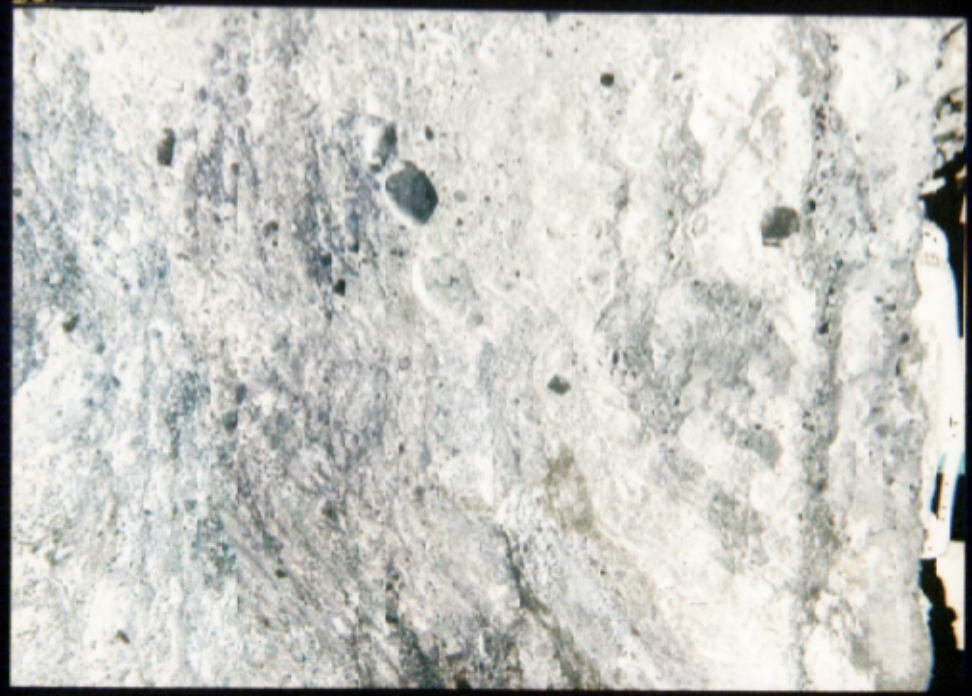

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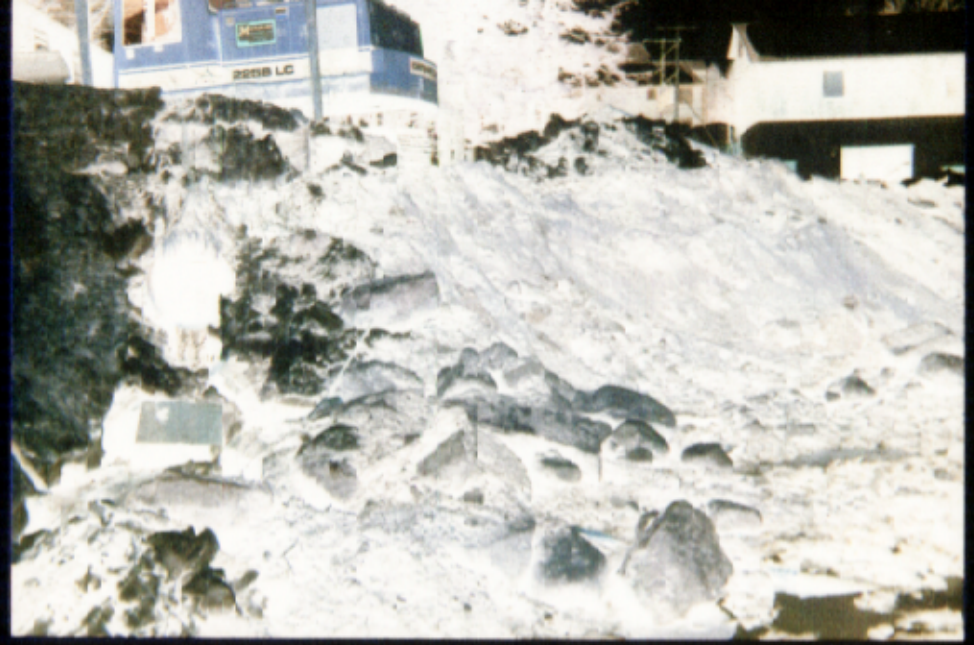
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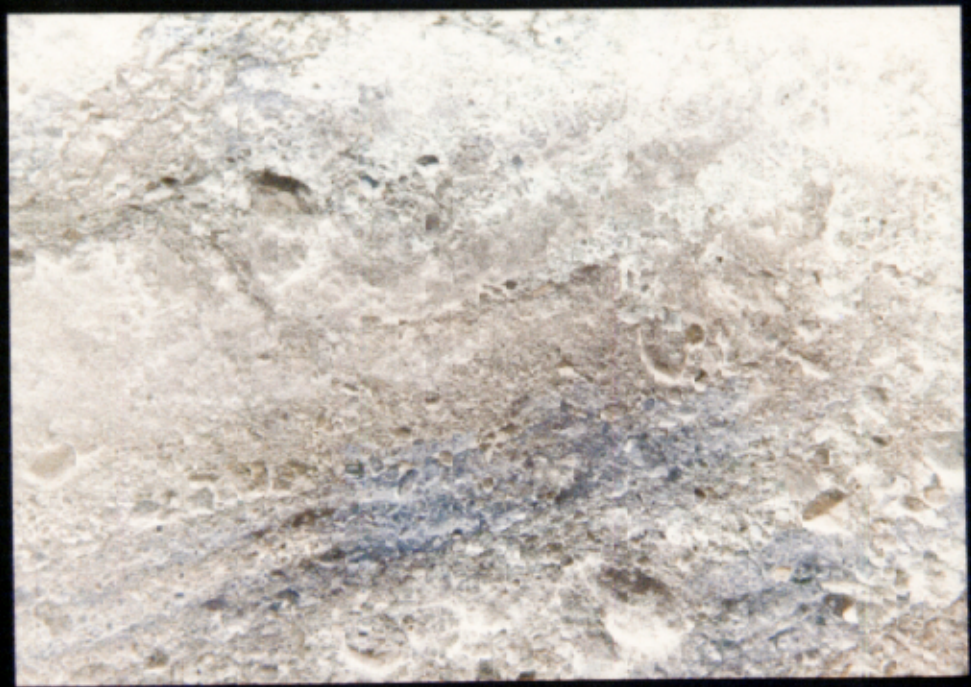

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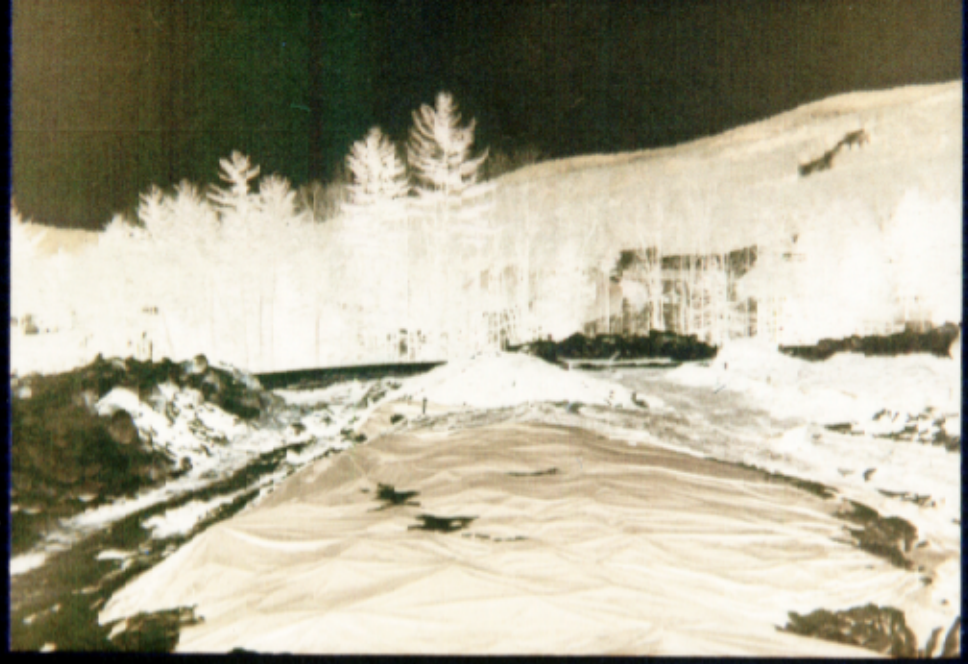

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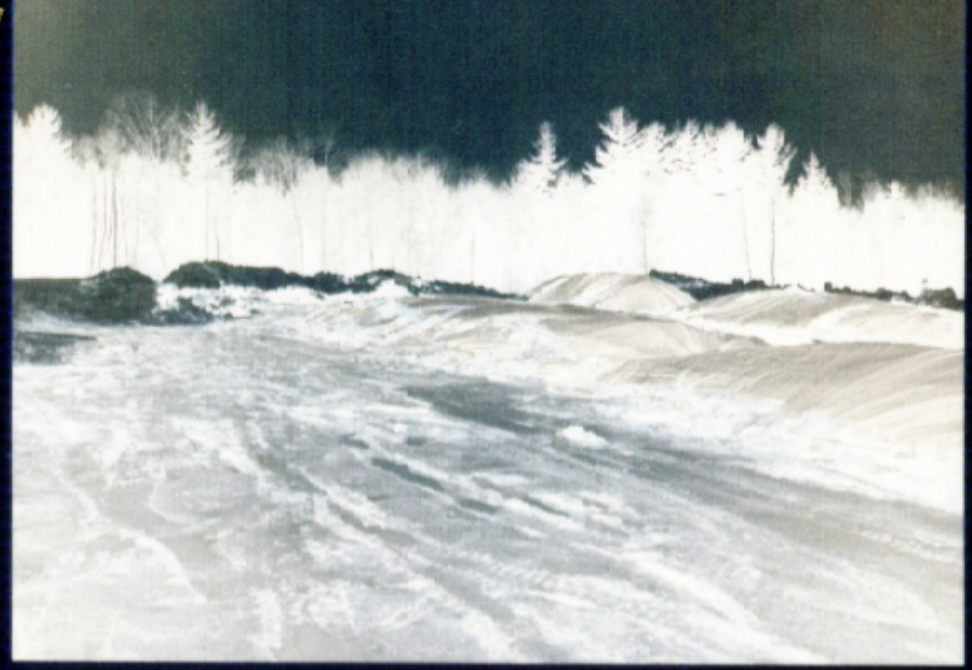

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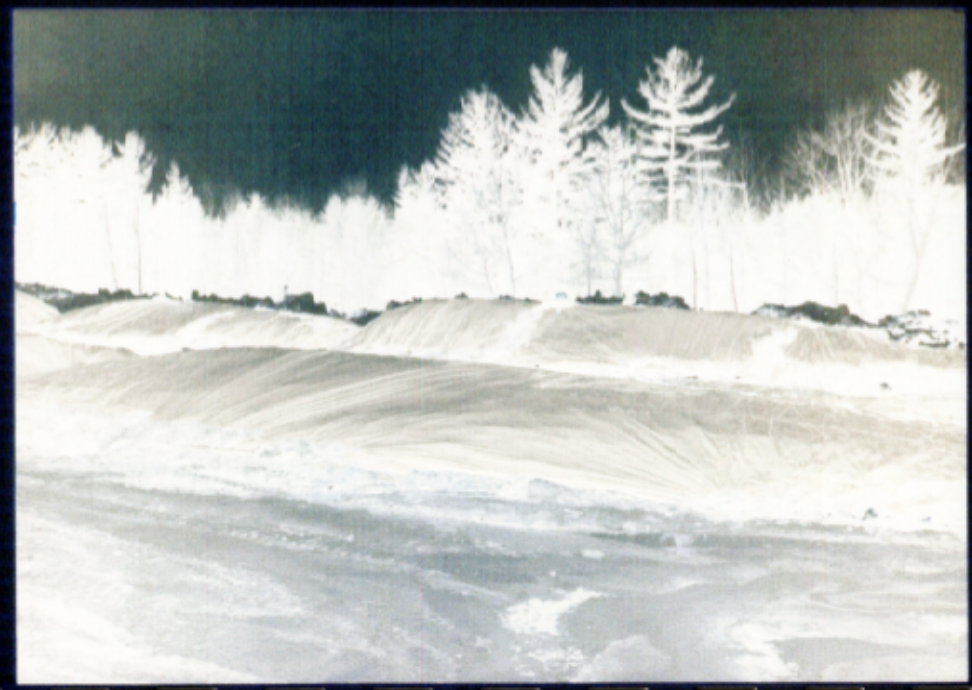

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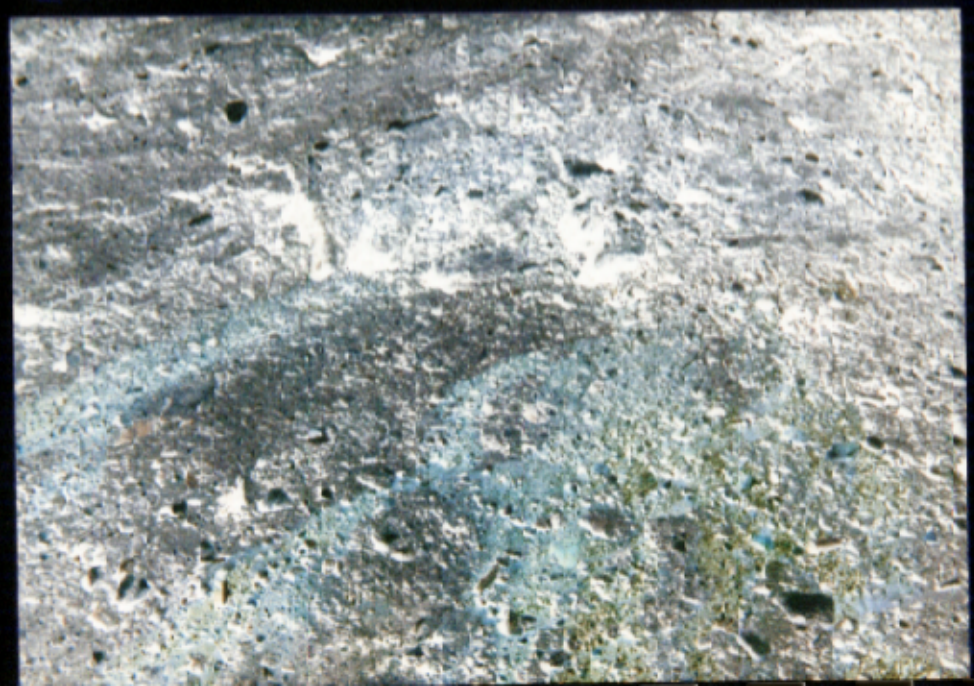

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Magic Mountain Ski Area
Maintenance Facility Petroleum Remediation
Initial Soil Characterization (EPA Methods 8020 & 418.1)
March 21-28, 1994

CELL #1 Date	Sample	Benzene	MBTEX	TPH	PID
05/21	#1	0	36.9	3500	35
05/22	#2	0	30	1900	10
05/22	#3	0	54.7	8600	16
Average Concentration		0	40.53	4666.67	20.33
Remediation Goal: (90% Reduction)		0	4.05	466.67	2.03

CELL #2 Date	Sample	Benzene	MBTEX	TPH	PID
03/23	#1	0	2204.4	470	60
05/21	#2	0	1637.9	6000	150
05/21	#3	240	26652	2400	35
Average Concentration		80	10164.77	2957	81.67
Remediation Goal: (90% Reduction)		8	1016.48	295.67	8.17

CELL #3 Date	Sample	Benzene	MBTEX	TPH	PID
03/23	#1	0	7565	2400	48
03/23	#2	0	186	2200	45
03/23	#3				
Average Concentration		0	3875.5	2300	46.50
Remediation Goal: (90% Reduction)		0	387.55	230.00	4.65

CELL #4 Date	Sample	Benzene	MBTEX	TPH	PID
03/25	#1	0	1325	5700	110
03/25	#2	0	5399	390	150
03/25	#3	0	12728.4	140	
Average Concentration		0	6484.13	6484	130.00
Remediation Goal: (90% Reduction)		0	648.41	648.41	13.00

CELL #5 Date	Sample	Benzene	MBTEX	TPH	PID
03/28	#1	0	1009	38	110
03/28	#2	0	305	270	112
03/28	#3	0	200	107	88
Average Concentration		0	504.67	138	103.33
Remediation Goal: (90% Reduction)		0	50.47	13.83	10.33

Benzene and MBTEX concentrations in ug/kg, after EPA Method 8020.
TPH concentrations in mg/kg, after EPA Method 418.1
MBTEX = Total MTBE, Benzene, Toluene, Ethylbenzene and Xylene.
TPH = Total Petroleum Hydrocarbons.

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 4, 1994
DATE SAMPLED: March 21, 1994

PROJECT CODE: HNMG1126
REF. #: 57,570 - 57,574

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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ENDYNE, INC.

Laboratory Services

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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (SOIL)

CLIENT: Wagner, Heindel, and Noyes, Inc.
REPORT DATE: April 4, 1994
PROJECT NAME: Magic CAP
PROJECT CODE: HNMG1126
DATE SAMPLED: March 21-22, 1994
DATE RECEIVED: March 25, 1994
DATE ANALYZED: April 1, 1994
SAMPLER: M.K. Sparks

Reference #:	Station ID:	Concentration (mg/kg)[1]
57,570	S-1 Soil Composite/Stockpile #1	3,500.
57,571	S-2 Soil Composite/Stockpile #2	6,000.
57,572	S-3 Soil Composite/Stockpile #2	2,400.
57,573	S-4 Soil Composite/Stockpile #1	1,900.
57,574	S-5 Soil Composite/Stockpile #1	8,600.

Notes:

1 Method detection limit is 6.1 ppm
2 None detected

ENDYNE, INC.

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Williston, Vermont 05495
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CHAIN-OF-CUSTODY RECORD

09532

Project Name: Magic Lift Site Location: Magic Mtn. Londonderry, VT	Reporting Address: WHEN	Billing Address: WHEN
Endyne Project Number: HMG1126	Company: WHEN Contact Name/Phone #: MV Sparks 6580820	Sampler Name: MV Sparks Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57,570	S-1 Soil Composite/Stockpile #1	Soil		✓	3/21/94	2	250ml Amber		8020/418.1	None	No
57,571	S-2 Soil Comp/Stockpile #2			✓			9/125s				
57,572	S-3 Soil Comp/Stockpile #2			✓							
57,573	S-4 Soil/Stockpile #1			✓	3/22/94						
57,574	S-5 Soil Comp/Stockpile #1			✓							

Relinquished by: Signature MV Sparks	Received by: Signature Thom Alden	Date/Time 3/24/94
Relinquished by: Signature	Received by: Signature Jim Wetmore	Date/Time 3/25/94 1:05 pm

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel, and Noyes, Inc.
PROJECT NAME: Magic CAC
DATE REPORTED: April 4, 1994
DATE SAMPLED: March 23, 1994

PROJECT CODE: HNMG1128
REF. #: 57,579 - 57,582

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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Laboratory Services

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LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (SOIL)

CLIENT: Wagner, Heindel, and Noyes, Inc.
REPORT DATE: April 4, 1994
PROJECT NAME: Magic CAC
PROJECT CODE: HNMG1128
DATE SAMPLED: March 23, 1994
DATE RECEIVED: March 25, 1994
DATE ANALYZED: April 1, 1994
SAMPLER: Aldrich

Reference #:	Station ID:	Concentration (mg/kg)[1]
57,579	Manure	26.
57,580	S-1 Soil Stockpile #3	2,400.
57,581	S-2 Soil Stockpile #3	2,200.
57,582	S-3 Soil Stockpile #2	470.

Notes:

1 Method detection limit is 6.1 ppm
2 None detected

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Williston, Vermont 05495
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CHAIN-OF-CUSTODY RECORD

09531

Project Name: Magic CAC Site Location: Magic MTN, Londonday VT	Reporting Address: WHN	Billing Address: WHN
Endyne Project Number: HMM6112B	Company: WHN Contact Name/Phone #: Sparks - 658-0820	Sampler Name: Aldrich Phone #: 658-0820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57,579	Manure	Soil	XX	✓	3/23/94	1	250mL		8020/418.1	None	
57,580	S-1 Soil Stockpile #3	↓		✓							
57,581	S-2 Soil Stockpile #3			✓							
57,582	S-3 Soil Stockpile #3			✓							

Relinguished by: Signature: Chris Aldrich	Received by: Signature: JM Wetmore	Date/Time: 3/25/94 1:05PM
Relinguished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD,	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

ENDYNE, INC.

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 12, 1994
DATE SAMPLED: March 25, 1994

PROJECT CODE: HNMC1150
REF. #: 57,654 - 57,656

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Mark L. Tousel
for

Harry B. Locker, Ph.D.
Laboratory Director

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ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
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LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (SOIL)

CLIENT: Wagner, Heindel & Noyes, Inc.
REPORT DATE: April 12, 1994
PROJECT NAME: Magic CAP
PROJECT CODE: HNMC1150
DATE SAMPLED: March 25, 1994
DATE RECEIVED: March 30, 1994
DATE ANALYZED: April 11, 1994
SAMPLER: M.K. Sparks

Reference #:	Station ID:	Concentration (mg/kg)[1]
57,654	Soil Sample #1; Cell 4	5,700.
57,655	Soil Sample #2; Cell 4	390.
57,656	Soil Sample #3; Cell 4	140.

Notes:

1 Method detection limit is 6.1 ppm
2 None detected

ENDYNE, INC.

32 James Brown Drive
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57657-57659

CHAIN-OF-CUSTODY RECORD

09525

Project Name: Mayr CAP Site Location: Mayr Mtn, Londonderry, VT	Reporting Address: WHC N	Billing Address: WHC N
Endyne Project Number: HNMC150	Company: WHC N Contact Name/Phone #: MK Sparks 655-0820	Sampler Name: MK Sparks Phone #: 655-0820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57654	Soil Sample #1 Cell 4	Soil		✓	3/25/94	1	250 ml Amber glass		418.1 / 8020	no	no
57655	Soil Sample #2 Cell 4	"		"	"	1	"				
57656	Soil Sample #3 Cell 4	"		"	"	1	"				

Relinguished by: Signature MK Sparks	Received by: Signature Thom Aleksa	Date/Time
Relinguished by: Signature Thom Aleksa	Received by: Signature Jm Wehrone	Date/Time 3/30/94 8 Y, am

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 12, 1994
DATE SAMPLED: March 28, 1994

PROJECT CODE: HNMC1152
REF. #: 57,660 - 57,663

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Mark L. Faust
for

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

TOTAL HYDROCARBONS - EPA METHOD 418.1 (SOIL)

CLIENT: Wagner, Heindel & Noyes, Inc.
REPORT DATE: April 12, 1994
PROJECT NAME: Magic CAP
PROJECT CODE:HNMC1152
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994
DATE ANALYZED: April 11, 1994
SAMPLER: C. Aldrich

Reference #:	Station ID:	Concentration (mg/kg)[1]
57,660	Small Tank Excav.	1,100.
57,661	Soil Stockpile #5; S-1	107.
57,662	Soil Stockpile #5; S-2	270.
57,663	Soil Stockpile #5; S-3	38.

Notes:

1 Method detection limit is 6.1 ppm
2 None detected

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09316

CHAIN-OF-CUSTODY RECORD

57,660-57,667

Project Name: Magic CAP Site Location: Magic ANG Landfarm UT	Reporting Address: Will	Billing Address: Will
Endyne Project Number: WMC152	Company: Will Contact Name/Phone #: M Spears 6550820	Sampler Name: C. Aldrich Phone #: 6550820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57660	Small Tank Excav.	Soil		✓	3/28/94	1	250 mL		8020	Cool	
									418.1		
57661	Soil Stockpile #5 S-1								8020		
									418.1		
57662	Soil stockpile #5 S-2								8020		
									418.1		
57663	Soil stockpile #5 S-3								8020		
									418.1		

Relinquished by: Signature: Chris Aldrich	Received by: Signature: Jim Wehmore	Date/Time: 3/30/94 8:45 am
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 6, 1994
DATE SAMPLED: March 21-22, 1994

PROJECT CODE: HNMG1125
REF. #: 57,565 - 57,569

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 21, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1125
ANALYSIS DATE: March 31, 1994
STATION: S-1 Soil Comp./Stockpile #1
REF.#: 57,565
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	12.3
Toluene	10	ND
Xylene	30	24.6
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	117%
Toluene-d8:	92%
4-Bromofluorobenzene:	97%

PERCENT SOLIDS: 86%

NOTES:
1 None detected

ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 21, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1125
ANALYSIS DATE: March 31, 1994
STATION: S-2 Soil Comp./Stockpile #2
REF.#: 57,566
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	240.
Chlorobenzene	100	ND[2]
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	4,210.
Toluene	50	402.
Xylene	150	21,800.
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	101%
Toluene-d8:	98%
4-Bromofluorobenzene:	109%

PERCENT SOLIDS: 86%

NOTES:

1 Detection limit raised due to high levels of contamination. Sample was run at a 20% dilution.
2 None detected.

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 21, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1125
ANALYSIS DATE: March 31, 1994
STATION: S-3 Soil Comp./Stockpile #2
REF.#: 57,567
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	ND
Toluene	10	172.
Xylene	30	75.9
MTBE	30	1,390.

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	99%
Toluene-d8:	88%
4-Bromofluorobenzene:	94%

PERCENT SOLIDS: 87%

NOTES:
1 None detected

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 22, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1125
ANALYSIS DATE: March 31, 1994
STATION: S-4 Soil Comp./Stockpile #1
REF.#: 57,568
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	ND
Toluene	10	ND
Xylene	30	TBQ[2]
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	95%
Toluene-d8:	94%
4-Bromofluorobenzene:	89%

PERCENT SOLIDS: 79%

NOTES:
1 None detected.
2 Trace below quantitation limit.

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 22, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1125
ANALYSIS DATE: March 31, 1994
STATION: S-5 Soil Comp./Stockpile #1
REF.#: 57,569
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	20	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	TBQ[2]
Toluene	10	TBQ
Xylene	30	34.7
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	99%
Toluene-d8:	95%
4-Bromofluorobenzene:	112%

PERCENT SOLIDS: 92%

NOTES:
1 None detected.
2 Trace below quantitation limit.

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09532

CHAIN-OF-CUSTODY RECORD

Project Name: Magic CAP Site Location: Magic Mtn, Londonderry, VT	Reporting Address: WHCN	Billing Address: WHCN
Endyne Project Number: 1HMG1125	Company: WHCN Contact Name/Phone #: MK Sparks 658-0820	Sampler Name: MK Sparks Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57,565	S-1 Soil Composite/Stockpile #1	Soil		✓	3/21/94	2	250ml Amber glass		8020/418.1	None	No
57,566	S-2 Soil Comp/Stockpile #2			✓							
57,567	S-3 Soil Comp/Stockpile #2			✓							
57,568	S-4 Soil/Stockpile #1			✓	3/22/94						
57,569	S-5 Soil Comp/Stockpile #1			✓							

Relinquished by: Signature MK Sparks — Received by: Signature Thomas Allen — Date/Time 3/24/94

Relinquished by: Signature — Received by: Signature Jim Wetmore — Date/Time 3/25/94 1:05 pm

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAC
DATE REPORTED: April 6, 1994
DATE SAMPLED: March 23, 1994

PROJECT CODE: HNMG1127
REF. #: 57,575 - 57,578

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAC
REPORT DATE: April 6, 1994
SAMPLER: Chris Aldrich
DATE SAMPLED: March 23, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1127
ANALYSIS DATE: April 4, 1994
STATION: Manure
REF.#: 57,575
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	ND
Toluene	10	434.
Xylene	30	ND
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 6

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	114%
Toluene-d8:	97%
4-Bromofluorobenzene:	92%

PERCENT SOLIDS: 74%

NOTES:
1 None detected

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAC
REPORT DATE: April 6, 1994
SAMPLER: Chris Aldrich
DATE SAMPLED: March 23, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1127
ANALYSIS DATE: April 4, 1994
STATION: S-1 Soil Stockpile #3
REF.#: 57,576
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	100	ND[2]
Chlorobenzene	200	ND
1,2-Dichlorobenzene	200	ND
1,3-Dichlorobenzene	200	ND
1,4-Dichlorobenzene	200	ND
Ethylbenzene	100	125.
Toluene	100	ND
Xylene	300	7,440.
MTBE	300	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	121%
Toluene-d8:	104%
4-Bromofluorobenzene:	102%

PERCENT SOLIDS: 91%

NOTES:

1 Detection limit raised due to high levels of contamination. Sample was run at a 10% dilution.
2 None detected.

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAC
REPORT DATE: April 6, 1994
SAMPLER: Chris Aldrich
DATE SAMPLED: March 23, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1127
ANALYSIS DATE: April 4, 1994
STATION: S-2 Soil Stockpile #3
REF.#: 57,577
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	20.0
Toluene	10	ND
Xylene	30	166.
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	100%
Toluene-d8:	103%
4-Bromofluorobenzene:	107%

PERCENT SOLIDS: 88%

NOTES:
1 None detected

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAC
REPORT DATE: April 6, 1994
SAMPLER: Chris Aldrich
DATE SAMPLED: March 23, 1994
DATE RECEIVED: March 25, 1994

PROJECT CODE: HNMG1127
ANALYSIS DATE: April 4, 1994
STATION: S-3 Soil Stockpile #2
REF.#: 57,578
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	273.
Toluene	10	41.4
Xylene	30	1,890.
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	114%
Toluene-d8:	98%
4-Bromofluorobenzene:	95%

PERCENT SOLIDS: 89%

NOTES:
1 None detected.

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09531

CHAIN-OF-CUSTODY RECORD

Project Name: Magic CAC Site Location: Magic MTN, Londonderry VT	Reporting Address: WHW	Billing Address: WHW
Endyne Project Number: HMM61-126	Company: WHW Contact Name/Phone #: Sparks - 6580820	Sampler Name: Aldrich Phone #: 6580820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57,575	Manure	Soil	~~X~~	✓	3/23/94	1	250mL		8020/418.1	None	
57,576	S-1 Soil Stockpile #3			✓							
57,577	S-2 Soil Stockpile #3			✓							
57,578	S-3 Soil stockpile #2	↓		✓							

Relinquished by: Signature: Thomas Aldrich	Received by: Signature: M Wetmore	Date/Time: 3/25/94 1:05 PM
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 6, 1994
DATE SAMPLED: March 25, 1994

PROJECT CODE: HNMC1151
REF. #: 57,657 - 57,659

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 25, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1151
ANALYSIS DATE: April 4, 1994
STATION: Soil Sample #1, Cell 4
REF.#: 57,657
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	100	ND[2]
Chlorobenzene	200	ND
1,2-Dichlorobenzene	200	ND
1,3-Dichlorobenzene	200	ND
1,4-Dichlorobenzene	200	ND
Ethylbenzene	100	1,040.
Toluene	100	179.
Xylene	300	4,180.
MTBE	300	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	106%
Toluene-d8:	95%
4-Bromofluorobenzene:	109%

PERCENT SOLIDS: 89%

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample was run at a 10% dilution.
2 None detected.

ENDYNE, INC.

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 25, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1151
ANALYSIS DATE: April 4, 1994
STATION: Soil Sample #2, Cell 4
REF.#: 57,658
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	ND[2]
Chlorobenzene	100	ND
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	215.
Toluene	50	ND
Xylene	150	1,110.
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	105%
Toluene-d8:	99%
4-Bromofluorobenzene:	98%

PERCENT SOLIDS: 84%

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample was run at a 20% dilution.
2 None detected.

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: Mike Sparks
DATE SAMPLED: March 25, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1151
ANALYSIS DATE: April 4, 1994
STATION: Soil Sample #3, Cell 4
REF.#: 57,659
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	ND[2]
Chlorobenzene	100	ND
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	1,350.
Toluene	50	78.4
Xylene	150	11,300.
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	109%
Toluene-d8:	103%
4-Bromofluorobenzene:	90%

PERCENT SOLIDS: 87%

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample was run at a 20% dilution.
2 None detected.

ENDYNE, INC.

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09525

CHAIN-OF-CUSTODY RECORD

Project Name: Magic CAP Site Location: Magic Mtn, Londonderry, VT	Reporting Address: WHEN	Billing Address: WHEN
Endyne Project Number: HNMC115J	Company: WHEN Contact Name/Phone #: MK Sparks 655-0820	Sampler Name: MK Sparks Phone #: 655-0820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57657	Soil Sample #1 Cell 4	Soil		✓	3/25/94	1	250 ml Amber glass		418.1 8020	NO	NO
57658	Soil Sample #2 Cell 4	"		"	"	1	"		"	"	"
57659	Soil Sample #3 Cell 4	"		"	"	1	"		"	"	"

Relinquished by: Signature MK Sparks	Received by: Signature Chris Allen	Date/Time
Relinquished by: Signature Chris Allen	Received by: Signature Jon Wetmore	Date/Time 3/30/94 8:45 am

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										

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REPORT OF LABORATORY ANALYSIS

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
DATE REPORTED: April 6, 1994
DATE SAMPLED: March 28, 1994

PROJECT CODE: HNMC1153
REF. #: 57,664 - 57,667

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: C. Aldrich
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1153
ANALYSIS DATE: April 5, 1994
STATION: Small Tank Excav.
REF.#: 57,664
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)	Concentration As Received (ug/kg)
Benzene	10	ND[1]
Chlorobenzene	20	ND
1,2-Dichlorobenzene	20	ND
1,3-Dichlorobenzene	20	ND
1,4-Dichlorobenzene	20	ND
Ethylbenzene	10	48.7
Toluene	10	TBQ[2]
Xylene	30	387.
MTBE	30	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	115%
Toluene-d8:	102%
4-Bromofluorobenzene:	112%

PERCENT SOLIDS: 87%

NOTES:
1 None detected
2 Trace below quantitation limit

ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: C. Aldrich
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1153
ANALYSIS DATE: April 5, 1994
STATION: Soil Stockpile #5, S-1
REF.#: 57,665
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	ND[2]
Chlorobenzene	100	ND
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	TBQ[3]
Toluene	50	ND
Xylene	150	255.
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	109%
Toluene-d8:	106%
4-Bromofluorobenzene:	87%

PERCENT SOLIDS: 91%

NOTES:

1 Detection limit raised due to high levels of contamination. Sample was run at a 20% dilution.
2 None detected.
3 Trace below quantitation limit.

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: C. Aldrich
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1153
ANALYSIS DATE: April 5, 1994
STATION: Soil Stockpile #5, S-2
REF.#: 57,666
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	ND[2]
Chlorobenzene	100	ND
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	140.
Toluene	50	ND
Xylene	150	869.
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	112%
Toluene-d8:	103%
4-Bromofluorobenzene:	99%

PERCENT SOLIDS: 89%

NOTES:

1 Detection limit raised due to high levels of contamination. Sample was run at a 20% dilution.
2 None detected.

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

EPA METHOD 8020 COMPOUNDS BY EPA METHOD 8240

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: C. Aldrich
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1153
ANALYSIS DATE: April 5, 1994
STATION: Soil Stockpile #5, S-3
REF.#: 57,667
TIME SAMPLED: Not Indicated

Parameter	Detection Limit (ug/kg)[1]	Concentration As Received (ug/kg)
Benzene	50	ND[2]
Chlorobenzene	100	ND
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	50	TBQ[3]
Toluene	50	ND
Xylene	150	TBQ
MTBE	150	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

1,2 Dichloroethane-d4:	113%
Toluene-d8:	106%
4-Bromofluorobenzene:	85%

PERCENT SOLIDS: 87%

NOTES:

1 Detection limit raised due to high levels of contamination. Sample was run at a 20% dilution.
2 None detected.
3 Trace below quantitation limit.

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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(802) 879-4333
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n/a

EPA METHOD 8020 BY EPA METHOD 8240

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Wagner, Heindel & Noyes, Inc.
PROJECT NAME: Magic CAP
REPORT DATE: April 6, 1994
SAMPLER: C. Aldrich
DATE SAMPLED: March 28, 1994
DATE RECEIVED: March 30, 1994

PROJECT CODE: HNMC1153
ANALYSIS DATE: April 5, 1994
STATION: Soil Stockpile #5, S-3
REF.#: 57,667
TIME SAMPLED: Not Indicated

Parameter	Sample(ug/L)	Spike(ug/L)	Dup 1(ug/L)	Dup 2(ug/L)	Average %Recovery
Benzene	ND	50	55.1	53.6	109%
Toluene	ND	50	53.3	51.7	105%
Chlorobenzene	ND	50	45.2	44.3	90%

Notes:

1 None detected.

ENDYNE, INC.

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09316

CHAIN-OF-CUSTODY RECORD

Project Name: Magic CAP Site Location: Magic MTN, Londonderry, VT	Reporting Address: WHW	Billing Address: WHW
Endyne Project Number: HMMC1153	Company: WHW Contact Name/Phone #: MSparks 6580820	Sampler Name: C. Aldrich Phone #: 6580820

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
57,1064	[redacted]	Soil		✓	3/28/94	1	250 mL		8020	Cool	
57,1065	[redacted]								[redacted]		
57,1066	Soil Sample #5 S-2								8020		
57,1067	[redacted]								[redacted]		
									8020		
									[redacted]		

Relinquished by: Signature: Chris Aldrich	Received by: Signature: Jim Wetmore	Date/Time: 3/30/94 8:45 am
Relinquished by: Signature	Received by: Signature	Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	[redacted]		28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										

SOIL STAGING AREA
2600yd3 TOTAL CONTAMINATED SOILS
686yd3 COW MANURE
TOTAL VOLUME FOR TREATMENT: 3286 yd3
CELL 1 PID: 10–50ppm
CELL 2 PID: >50ppm
CELL 3 PID: 10–50ppm
CELL 4 PID: >50ppm
CELL 5 PID: >50ppm
SOIL STOCKPILE (TYP.)
TREATMENT CELL: EARTHEN BERM APPROX. 30' X 80' W/ 6 mil. POLYETHYLENE PLASTIC LINER AND COVER.
MANURE TO SOIL MIXTURE 1:4
NORTH
NORTH PARKING AREA
SW-1
SW-2
SW-3
SW-4
SW-5
MAINTENANCE BUILDING
LIMIT OF EXCAVATION
-VOLUME CONTAMINATED SOIL STOCKPILE: 18yd3
-TOTAL VOLUME SOIL EXCAVATED: 80yd3
STAND-BY ELECTRICAL GENERATOR TANK SITE
SNOWMAKING COMPRESSOR STATION AND UNDERGROUND STORAGE TANK FARM SITE
SUSPECTED UST LOCATION (EXCAVATIONS IN BASAL TILL)
LIMIT OF EXCAVATION
-VOLUME CONTAMINATED SOIL STOCKPILED: 2582yd3
-TOTAL VOLUME SOIL EXCAVATED: 3840yd3
SUSPECTED UST LOCATION (DEEP EXCAVATION IN BASAL TILL)
OVERHEAD ELECTRICAL LINES
ACCESS ROAD
EASTERN STREAM CHANNEL
MW-1
MW-5
MW-6
MW-9
MW-10
TP-1
CULVERT PIPE
SKI SCHOOL BUILDING
PARKING AREA
MOUNTAIN ACCESS ROAD
THE INN AT MAGIC MOUNTAIN
BASE LODGE
MOUNTAIN SIDE CONDOMINIUM
POSTAL LODGE
LEGEND
EDGE OF DRIVE/PARKING/ROADWAYS
WOODS
MW-1 MONITORING WELL
STREAM
SB-1 SOIL BORING LOCATION
SW-1 SURFACE WATER SAMPLING POINT
SURFACE CONTOURS
UTILITY POLE
CONTAMINATED SOILS NOT EXCAVATED DUE TO OVERHEAD ELECTRICAL LINES AND SURFACE WATER
A A' CROSS SECTION LINES
NOTE: MONITORING WELLS MW-2, MW-3, MW-4, MW-7, AND MW-8 WERE REMOVED 3/94 DURING EXCAVATION OF SITE.
THIS PLAN COMPILED FROM:
1. DUFRENSE - HENRY SURVEY ON 01/29/90
2. HARRINGTON ENGINEERING INC. "WATER AND SEWER LAYOUT PLANS" SHEETS IIIC1 AND IIIC3 DATED 3/25 + 3/26/87, RESPECTIVELY.
Wagner, Heindel, and Noyes
CONSULTING SCIENTISTS AND ENGINEERS
• Hydrogeology • Ecology •
• Environmental Engineering •
BURLINGTON, VERMONT
MAGIC MOUNTAIN SKI AREA
LONDONDERRY, VERMONT
EXCAVATION AND SOIL STAGING MAP
Revisions:
DATE: 5/10/94 SCALE: 1"=40' DRN: MRL APPD: MKS
C:\MAGIC\SITEMAP.DWG